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This paper is intended to provide a systematic treatment of some hypotheses relating to labor force participation determinants, and an illustration of the relative importance of age, education, and marital status for female participation. Marital status, education, and age have all been shown to affect participation rates. On an impressionistic basis, marital status has been shown to have a greater effect than education, which in turn has a greater impact than age. Although age is of least importance, there is evidence of a pattern in its effect. Within "high" and "low" education groups of single females, age is roughly related in an inverse manner to participation. The pattern for married women is more complex. Within each of the educational groups, the top three rates relate to those aged 40 to 44, 45 to 49, and 50 to 54--ages at which labor force re-entry occurs, after the prime child-bearing-and-care years. (JK)

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SPECIAL LABOUR FORCE STUDIES

No. 5

WOMEN WHO WORK: PART I

The Relative Importance of Age, Education and Marital Status for Participation in the Labour Force

by

John D. Allingham
University of Western Ontario
and
The Australian National University

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FOREWORD

This is the fifth in a series of research studies concerned with the analysis of selected economic, social or demographic aspects of the working population. The statistical information on which this study was based was derived from special tabulations prepared from the 1961 Census of Canada. Further analysis of these special data will appear in forthcoming studies in this series.

These studies are prepared under the direction of Dr. Sylvia Ostry, Director, Special Manpower Studies and Consultation.

The responsibility for the analysis and interpretation of the data is that of the author and not of the Dominion Bureau of Statistics.

WALTER E. DUFFETT,
Dominion Statistician.

AUTHOR'S PREFACE

This report is based on special tabulations from the 1961 "Census of Canada" and is part of a larger project initiated in the Labour Division of the Dominion Bureau of Statistics, and being carried out in the new Special Manpower Studies Division under Dr. Sylvia Ostry.

Two cited monographs were available only in draft form, hence some page references have been omitted.

I am indebted to many people for their comments and labour on the study, especially to Mrs. Shan Ross of the University of Western Ontario for valuable research assistance, and to the clerical and technical staff of the Research and Analysis Section of the Labour Division during the Summer of 1966.

Part II of this study will focus on the participation of married women in the Canadian work force.

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INTRODUCTION

The increasing importance of female labour in the Canadian economy has been well documented.[1] The most dramatic recent change—the entry into the labour force of a large proportion of married women—has many implications, one of which may be change in fertility patterns[2] with consequent alterations in the growth and structure of the Canadian population.

The growing proportion of married females in the work force is in part a reflection of their increasing emancipation from traditional roles. Such emancipation leads to adjustments of husband-wife roles and in family life, the consequences of which are not clear.[3]

> Will mind children, my home, 5 days a week. Pickup and return.[4]

Despite the rapid increase in the last two decades of female participation in the labour force, a majority of females between the ages of 15 and 64 is still not gainfully employed.[5] Thus there is a possibility of a considerable participation increase among married females. Because of the potential impact of continued increase in female participation on our economy, our population growth, and other aspects of our society, sufficient knowledge of the determinants of female participation to enable one to anticipate future trends is desirable.

An initial step toward development of participation theory is the discovery of differences between females who are in and out of the labour force. In this paper, three variables known from other studies to be highly correlated with participation are examined in such a way as to reveal their *relative* importance. By projecting change in the incidence of the more crucial of these characteristics in the female population, we may perhaps successfully predict change in female participation.[6]

METHODOLOGY OF INQUIRY INTO FEMALE LABOUR FORCE PARTICIPATION IN CANADA

General Review

The most important research problem regarding female participation concerns participation determinants. We lack an adequate theory of female labour force participation. With such a theory, one would be in a position to anticipate future trends of female involvement in the work force. The projection of past trends in female participation to provide estimates of the future female work force has been the concern of some scholars.[7] Unfortunately, our knowledge of participation determinants has been too primitive to allow for anything but simple—and hence perhaps simplistic—projections of the future female labour force.

The absence of a useful theory of participation determination may be related both to the inherent complexity of the problem, which cuts across many disciplines, and to the absence of appropriate data with which to test hypotheses. The former problem has resulted in research which reflects the special

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[1] The trend is summarized in Dept. of Labour, *Women at Work in Canada*, Ottawa: Queen's Printer, 1964.

[2] See: Henripin, J. *Tendances et Facteurs de la Fécondité au Canada, Monographie du Recensement*, 1961, Ch. X, Ottawa: *L'Imprimeur de la Reine*, 1967. In the United States, the lower fertility of employed married females has been demonstrated; only a part of this lower fertility would be the result of 'selection' of women into the labour force with some physical impairment for fertility. See: Freedman, R., *et al. Family Planning, Sterility, and Population Growth*, New York: McGraw-Hill, 1959, pp. 136-137. Also see: Ridley, J.C., "Number of Children Expected in Relation to Non-Familial Activities of the Wife", *Milbank Memorial Fund Quarterly*, Vol. 37, No. 3, July 1959, pp. 277-96. The rise in labour force participation of married females has been coincident with fertility decline during this decade. The direction of causation, if such exists, is obscure. However, the availability of highly efficient, easily used contraceptives facilitates both postponement of bearing the first child to remain in the labour force, and earlier cessation of childbearing to re-enter the labour force.

[3] A useful summary and evaluation of studies bearing on this problem is found in Nye, I., and Hoffman, L., *The Employed Mother in America*, Chicago: Rand McNally, 1963. An evaluation of Canadian research to 1963 is found in Elkin, F., *The Family in Canada*, Ottawa: Canadian Conference on the Family, Apr. 1964, pp. 117-28.

[4] One of many such advertisements in the *London Free Press*, Feb. 15, 1967. A study of the *London Free Press* and the *Toronto Globe and Mail* from 1940 to 1967 showed a considerable increase in such advertising. However we lack data on the growth in the number and size of such establishments—both private and public—relative to population increase. Not everyone believes that the existence of day-care facilities are important in influencing participation decisions; see: Women's Bureau, Dept. of Labour, *Report of a Consultation on the Employment of Women with Family Responsibilities*, Ottawa: Mimeographed, 1965.

[5] The *1961 Census of Canada* revealed that about 30 per cent of females aged 15-64 was in the labour force. For males of the same age range the figure was 78 per cent. Since females tend to have a more tenuous attachment to the labour force than males, the participation proportion at any one point in time is considerably less than the proportion which had participated at *some* stage during the preceding year. On this latter point see: Ostry, S., "The Female Worker", *Labour Force Studies*, 1961 Census Monograph Programme, Ottawa: Queen's Printer, 1967, and Whittingham, F.J., and Wilkinson, B.W., "Work Patterns of the Canadian Population, 1964", *Special Labour Force Studies*, No. 2, Ottawa: Dominion Bureau of Statistics, Apr. 1967.

[6] For example, if education were the most crucial characteristic, the growing average education of the female population would, all else being equal, produce a higher average participation rate. In this paper participation refers to participation in the labour force as defined in the *1961 Census of Canada*. The reader should be aware of the limitations inherent in considering so few variables. Marital status, for example, is in part a "mask" for other relevant characteristics, such as presence of absence of children, but imperfectly represents such characteristics. Part II of this study will take more variables into account.

[7] Denton, F., Kasahara, Y., and Ostry, S., *Population and Labour Force Projections to 1970*, Staff Study No. 1, Economic Council of Canada, Ottawa: Queen's Printer, Dec. 1964.

interests, and competence, of the investigator.[8] While often valuable, such discipline-specific research necessarily provides only small components of a participation theory.

Studies which probe for details regarding participation decisions may provide considerable insight into the complexity of the problem but they are most often based on small samples of questionable generality.[9]

Any research which documents associations or correlations of certain variables with participation rates is, implicitly or explicitly, testing some hypotheses with respect to participation determinants. A common reticence to make such hypotheses explicit may be attributed to the researchers' awareness of interrelations among many variables. Such interrelations cloud causal inferences. For example, a decline in participation rates of women from ages 20-24 to 30-34 has been found in both the U.S.A. and Canada, yet age *per se* is not an important cause of the observed decline; rather, age is a dimension along which certain events more crucial to participation decisions occur – e.g. childbearing.

Thus far, much published research based on census data has illustrated associations between participation rates and one, or at best two other variables, simultaneously considered. Such research, while necessarily provisional, has suggested that many variables may have an independent influence on the participation of females.[10] Forthcoming research will assess the independent influence of five variables on the participation of married women.[11]

Most hypotheses advanced in this study have, for the most part, been implicit or explicit in previous papers. The intention is mainly to provide a more systematic treatment of some hypotheses and to attempt an illustration of the *relative* importance of three variables, considered simultaneously, for female participation. In particular, the relative importance of age, education, and marital status for the participation of females in Canada of June, 1961, will be documented.[12]

Cohort Analysis in the Study of the Female Labour Force

Previous research has suggested that female participation is greatly affected by stages in the 'family cycle'. Prior to the 1950s, events such as marriage, pregnancy, childbearing and rearing appear to have contributed toward a steady attrition in the participation rates of females, say, from the ages of 20-24 on.[13] Such findings were based on participation data from successive censuses. For example, the participation rate of women aged 25-34 was obtained from the 1921 census. Ten years later, this cohort of women[14] was aged 35-44 and their participation rate recorded in the 1931 census. Thus, a participation profile was derived of a birth cohort of women, over their lifetime.[15]

Unfortunately, lack of detail in censuses prior to 1951 precludes extensive analysis of participation profiles of historical cohorts. However, one can construct profiles of 'hypothetical' cohorts from contemporary data. Instead of tracing changes in the participation rates of real cohorts of women as they age, from census to census, one can treat the participation differences of women of different ages in the *same census* as a cohort. In other words the participation rates of women aged 30-34 in 1961 may be considered to approximate the likely participation rate of women aged 20-24 in 1961 when they reach age 30-34 (in 1971).[16] Such a cohort is hypothetical because it is based on cross-sectional data, data relating to one point in time rather than to "longitudinal" data, i.e. data relating to the "same" groups of persons over time. Some actual and potential difficulties in the use of hypothetical cohorts in the study of female participation are outlined in the Appendix.[17] The reader is asked to remember that cohorts discussed in this paper are hypothetical cohorts and thus terminology suggesting longitudinal data e.g., rates "declining" between the ages of 'X' and 'X+5' – may be somewhat misleading.

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[8] As an example of such work by an economist, see Mincer, J., "Labour Force Participation of Married Women: A Study of Labour Supply", *Aspects of Labor Economics*, National Bureau of Economic Research, Princeton: Princeton University Press, 1962, pp. 63-97. A sociological and psychological perspective on the problem is illustrated in Nye, F.I., and Hoffman, L.W., *op. cit.*

[9] For example, see: Dept. of Labour, *Occupational Histories of Married Women Working For Pay*, Ottawa: Queen's Printer, 1959, esp. pp. 67-70.

[10] Among the many such variables are marital status, number and ages of children, rural or urban residence, age, and husband's income. See: Ostry, S., "The Female Worker", *op. cit.*

[11] The relative importance of the following factors will be assessed: age, wife's education, husband's education, residence (various urban and rural categories), child status (none, under age 6, aged 6-14, other).

[12] Such documentation is inherently provisional. Further research considering many more variables simultaneously will undoubtedly result in a refinement of conclusions reached in this paper.

[13] For comment on the limited Canadian data available, see Ostry, S., "The Female Worker", *op. cit.* For U.S. data, see Oppenheimer, Valerie K., *The Female Labor Force In The United States: Factors Governing Its Growth And Changing Composition*, unpublished Ph.D. thesis, Berkeley: The University of California, 1966.

[14] The term 'cohort' is most precisely treated in demographic analysis. For an indication of current usage of the term see Barclay, G., *Techniques of Demographic Analysis*, New York: Wiley, 1958, pp. 184-187. Most often, the term cohort refers to persons of the same age or age group at any point in time.

[15] In addition to the attrition of the original cohort due to mortality, such cohorts in Canada are 'bled' through emigration and 'refurnished' through immigration. Observed trends may therefore in part be due to the changing composition of the cohort.

[16] The use of hypothetical cohorts need not imply a *prediction* of longitudinal participation for the youngest age group but may merely indicate a 'possible' longitudinal profile. However, the profile of a hypothetical cohort may well provide a useful indication of probable trends for the youngest age groups, particularly for the next decade or two (indicated by rates shown for the first few older groups in the hypothetical cohort).

[17] See pp. 23-26.

AGE, EDUCATION, AND MARITAL STATUS AS FACTORS AFFECTING FEMALE PARTICIPATION

An Elementary Theoretical Outline

The overall participation rate of women in the labour force at any point in time will be a function of interrelated demographic, economic, and other social factors. One may 'simplify' the function as the interaction of supply and demand. However it is demographic, economic, and "other social factors" which in turn determine supply and demand.[18]

In keeping with the limitations of the data to be discussed below, and with the interests of the author as a demographer and sociologist, many important economic factors in female participation will be ignored or at best simplistically dealt with. Rather, some attempt is made to draw together observations of previous students as well as those of the author, on the importance of age, education, and marital status for female participation. With the addition of some observations made on the basis of data not directly dealt with in this study, a simplified yet hopefully useful model of female participation based on the family cycle, and variants of this cycle, is advanced. A more technical treatment of some demographic variables as partial determinants of female participation is dealt with in a separate paper.[19]

Labour force activity – in the form of gainful employment – is generally restricted in Canada to persons within the age range of 15-65 years, although the pattern of participation within this age span is greatly different for males and for females.[20] However, age *per se* will not be of great importance except at ages on either side of the 15-65 range noted above, and then only gradually more important toward either pole of the human lifespan where lack of sufficient physical or mental development on the one hand, or progressive physical or mental deterioration on the other, may prove burdensome for labour force activity. However, both law and custom act to largely restrict participation outside the 15-65 age range.[21]

Changes in the participation of women *within* the 15-64 age range may best be understood if age is considered as a dimension along which certain role changes occur to a majority of women. These role changes tend to either facilitate employment or to impede employment although none are inherently significant to participation decisions. Rather, the significance of certain roles for participation in the labour force must be seen as culturally relative, and as such, changeable.

Over the age range 15-64, the dropping of the 'student' role and the adoption of the wife and mother roles constitutes a common sequence for women. Less familiar perhaps, are the role changes that result from the family life cycle. Changes in the timing of such family cycle events as birth of first child, birth of last child, marriage of last child, and death of one spouse have been extensively studied.[22]

Some of the role changes over time alluded to above have been seen as partial determinants of female participation, the most common observation being the decline in female participation at marriage, and the further decline accompanying the birth of children.[23]

Consider the participation profile of women in Canada, 1961, shown in Graph I, page 12. The profile shown is at least not incompatible with a rather simple model of participation based on a cycle of role changes which occur over the lives of most women. Assuming a rather constant demand for female labour over the ages of, say, 15-50, the changes in participation by age seen in Graph I can be viewed as a reflection of role changes, and changes in the nature of roles, which are to some extent competitive with employment.

The initial rise between the ages of 15-19 and 20-24 is, in terms of the model, the result of leaving school and hence of dropping the student role for that of 'worker'.

The progressive declines from ages 20-24 to 30-34 may be viewed as the *cumulative* effect of the 'competition' offered by the wife and mother roles versus that of worker. The participation rise from ages 30-34 to 45-49 may be attributed, in terms of the role model, to the changing nature of the mother role. Because of the attenuation by most women of childbearing long before physiological

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[18] The interactions of some demographic, economic and other social variables to produce certain levels of supply of and demand for female labour are discussed in Oppenheimer, Valerie K., *op. cit.*

[19] Allingham, J.D., "The Demographic Background to Change in the Number and Composition of Female Wage Earners in Canada, 1951-1961", *Special Labour Force Studies*, Series B. No. 1, Ottawa: Dominion Bureau of Statistics, 1967.

[20] See: Ostry, S., and Podoluk, J., *The Economic Status of the Aging*, Ottawa: Dominion Bureau of Statistics, Queen's Printer, 1966, Chart E-1, p. 20.

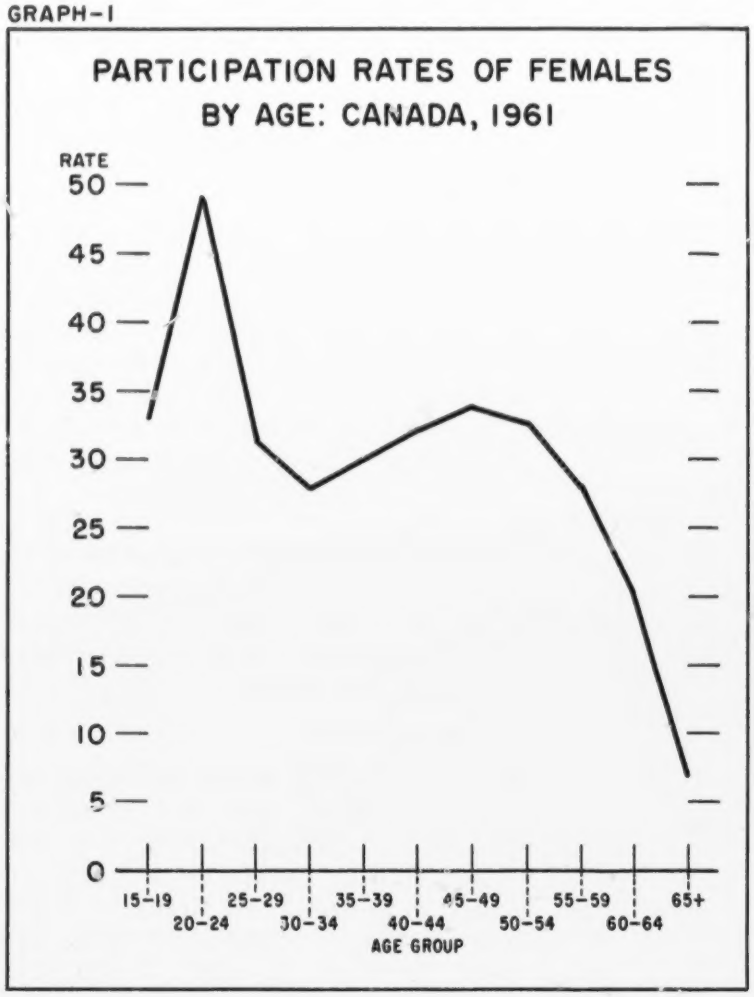
[21] Compulsory schooling to a minimum age and laws relating to the minimum age at which children may be hired for full-time work effectively eliminate most participation at ages under 15. In fact the 1961 census question on employment was asked only of those aged 15 or more. Social custom is a major force behind setting age 65 as the normal retirement age. Pension schemes are often based on this customary retirement age and hence help to reinforced the custom.

[22] An early analysis is that of Glick, P., "The Life Cycle of the Family", *Marriage and Family Living*, Vol. 18 No. 1, Feb. 1955, pp. 3-9. The most useful source to date is Glick, P., and Parke, R., "New Approaches in Studying The Life Cycle of the Family", *Demography*, Vol. 2, 1965, pp. 187-202.

[23] Ostry, S., and Podoluk, J., *The Economic Status of the Aging*, *op. cit.*, pp. 29-30; Nye, I., and Hoffman, L., *op. cit.*, pp. 7-9, and Oppenheimer, Valerie K., *op. cit.*

incapacity,[24] the last-born child will have entered school while the average mother is in her mid-thirties. With the school assuming much responsibility for the children during the day, the mother role becomes less demanding and hence less competitive with that of 'worker'.

GRAPH-I



While the life cycle model of participation sketched above fits well with contemporary profiles such as that shown in Graph I, participation profiles based on Canadian census data prior to 1961 have not shown a resurgence of participation after the mid-thirties. The characteristic profile prior to 1961 was one of continuous decline from the early peak at ages 20-24.[25] Some possible reasons for the change to a dual-peaked profile are explored below in Section 3.2.

The argument thus far may be summarized as follows. Age *per se* will have little influence on participation within the range of 15-64 years. The often observed relationship between age and participation – illustrated in Graph I above – is mainly the result of the relationship between age and the dropping or taking on of social roles that are, to a greater or lesser degree depending on a host of circumstances,[26] successfully competitive with labour force participation.

The third variable to be considered in this report – education – is expected to be directly related to participation, with or without taking into account age and/or marital status. A control for marital status and age is most desireable however, since one way in which education 'determines' participation is through the direct relationship between education and marriage age.[27] Therefore, the more highly educated women are expected to participate to a greater extent in the labour force, once they have left school, than the less educated, especially at younger ages, since a higher proportion would be single and thus self-supporting. Once married, women of higher education are expected to have fewer children.[28] Women of higher education are likely to marry men with higher education and, using education of husband as a rough index of earnings, are more likely to have access to automated substitutes for household chores. Thus, ironically, such women have *more* technological power to care for *smaller* families. While "financial need" is a likely rationale for entering the labour force, women with higher education are perhaps more likely to be responding to desires for "fulfillment". Such is especially true for women with professional training. The greater earning power of well-educated women, coupled with their husband's income, may also allow desired movement into upper-class consumption patterns.

In summary, age, marital status and education characteristics of women are expected to be systematically related to female participation rates. Age *per se* is expected to be least important within the age range considered – 15 to 64 – as it is primarily a dimension along which events more crucial to participation decisions occur. The events discussed in terms of role changes were school leaving, marriage, birth of first child, and entry of the last-born into school.

Because marital status indicates the presence or absence or roles that are more or less incompatible with labour force participation, marital status is expected to account for much of the variation in participation rates of women. The negative effect of the married status on participation

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[24] In the U.S.A. the median age at bearing the last child has been around 30 years, for the most recent cohorts of completed fertility, See Glick, P., and Parke, R., *op. cit.*, p. 190. No equivalent data have been produced in Canada, but the rapid attrition of age-specific fertility rates of married women after age 29 points to a similar situation. See: *Vital Statistics of Canada*, Ottawa: Dominion Bureau of Statistics, published yearly.

[25] The shift to a dual-peaked profile occurred somewhat earlier in the United States. See Oppenheimer, *op. cit.*

[26] Some of these mitigating circumstances are discussed below in Section 3.2.

[27] See Appendix Table A1, p. 25.

[28] The relationship between education and fertility of birth cohorts of completed fertility in Canada is clear. For example, among ever-married women aged 50-54 in 1961, those with elementary school or less had an average of 3.9 children while those with university education had only 2.0 children. Part of the difference is the result of a differential period "at risk" because of marriage age differences. However, marriage age differences account for only some of the fertility differences. See: Henripin, J., *op. cit.*, *Appendice H, Tableau H 4.*

will be strongest at those ages when the competitive power with the role of 'worker', of roles associated with marriage is greatest: when most women are simultaneously 'wives' and 'mothers of pre-school children'.

Education is expected to modify the general participation profiles hypothesized on the basis of age and marital status characteristics. The hypothesized effect of education may be summarized as follows:

(1) the higher the education the greater the attractiveness of the work force because of, among other things, higher salaries, more intrinsic work satisfaction, greater dissatisfaction with the housewife role and the greater likelihood of urban residence, where the occupational structure is conducive to female employment.[29]

(2) the higher the education, the less demanding are roles potentially competitive with labour force participation. For married women, the roles of wife and mother may be less demanding because of smaller, better spaced families, and the availability, through her husband's or her own higher income, of substitute services and labour saving devices.

(3) Poorly educated married women are less likely to be in the labour force although they are most likely to 'need' the money. Such may be the case because they tend to be geographically situated in areas where the occupational structure is least conducive to female employment, because they marry earlier and have more children over a longer span of time, and because there is less demand for the labour of women with poor education.[30]

The above 'model' has outlined some ways in which age, marital status, and education may be related to female participation rates. The hypothesized relationships are not in large part original. However, the integration of these hypotheses into a model of participation of a hypothetical cohort provides some background of tentative explanation for the substantive material to follow.

The Social Background to The Changed Participation Profile of Married Women Since 1951

Two major characteristics of change in the participation profile of women between 1951 and 1961 are the higher participation rates in 1961 among women of every age group except the youngest (15-19)[31] and the emergence of the "dual peak" through the tremendous rise in participation among women aged 35 and over. A partial explanation for the two changes involves consideration of many factors affecting the supply of and demand for female labour over the 1951 to 1961 decade. Only a brief outline of some important factors is considered in this study.[32]

There are two problems here. Why did the participation rate of women of almost all age groups rise over the 1951-61 decade and why did the rate for older women show a far greater than average increase.

Firstly, patterns of childbearing have changed. Completed family size has been declining for some time in Canada. Ever-married women[33] born in 1896 or earlier, had an average of over four children. The average number for the birth cohort of most recently completed fertility – born 1912-1916 – was just over three.[34] Perhaps more important than a decline in average family size has been the changed pattern of spacing children. The childbearing period has become more compressed in Canada as it has in the U.S.A. This compression results mainly from the attrition of childbearing after the mid-thirties.[35] An effect of these fertility changes is the 'emancipation' of most women by their late thirties, from childbearing – and from much child care once the youngest has entered school.

Secondly, economic and technological change has made less viable the full-time role of household manager.

> Technological advances in production and distribution have made it possible to fashion and service clothing, to produce vegetables and poultry, and to process food much more economically in factories, on specialized farms or in service establishments than in the individual home. These advances have transformed the mother ..... to [someone] whose utility in this respect sometimes approaches the trivial.[36]

Ironically, a reduction in family size has been coincident with a rapid acceleration in the automation of household tasks.

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[29] Of women not attending school, 73 per cent lived in urban areas in 1961. Broken down by education, only 57 per cent of those with no schooling lived in urban areas, in contrast with 80 per cent of those with 3-4 years of secondary school, and 90 per cent of women with university degrees. The figures are calculated from data in the *1961 Census of Canada*, Vol. 1, Bulletin 1.2–10, Table 73.

[30] Marriage age and fertility patterns in the United States are explored in Whelpton, P.K., *et. al.*, *Fertility and Family Planning in the United States*, Princeton: Princeton University Press, 1956, esp. p. 60. For Canada, see Henripin, *op. cit.*

[31] The increased holding power of the schools is no doubt responsible for the decline in employment among teenagers.

[32] For an exploration of the problem see: Oppenheimer, *op. cit.*

[33] Ever-married refers to currently married, separated, and divorced women collectively.

[34] *1961 Census of Canada*, Bulletin 4.1–8, Table H 1.

[35] The decline in age-specific fertility rates among Canadian women aged 35-39 from 1926 to 1964 has been phenomenal. One thousand such women had about 115 births in 1926 yet only 72 in 1964. See: *Vital Statistics of Canada*, for selected years, and for detailed exploration, Henripin, J., *op. cit.*

[36] Nye and Hoffman, *op. cit.* p. 4.

Subtle changes in values may also be occurring, making the image of the working mother more acceptable. The increasing average education of the female population—achieved mainly through the higher education of young females—has perhaps facilitated value change. Education may contribute to an increased awareness of alternate roles for women and to a devaluation of the traditional housewife role. Mass media, especially television, has contributed to the awareness of a wide scale of possible variations in female roles, and through advertising, has stimulated desire for at least a "middle-class" standard of living.

While married women most often give "financial reasons" for working,[37] and while studies based on secondary data have tended to show an inverse relationship between husbands' income and the proportion of wives working,[38] one should perhaps view this as evidence of a desire to achieve or maintain the life style portrayed through mass media, rather than as a response to a survival threat.

> The candied carrot, the desire for goods, has replaced the stick; the standard of living has become a built-in automatic drive. Aided and abetted by advertising and the installment plan, the two most fearsome inventions of man ..... selling has become the most striking activity of contemporary [life]. Against frugality, selling emphasizes prodigality; against asceticism, the lavishness of display.[39]

While the mortgaging of the future for instant suburban living may be an important motive for work among many women, it clearly is more applicable to younger women and to women whose husbands are not in the upper-income bracket. For older women whose mortgages have largely been retired and for women who have no financial problems, boredom resulting from the demise of a meaningful full-time household role may be an important factor. Lack of dignity, resulting from a feeling of non-contribution, is often restored through entering the labour force.[40]

Many factors of course, also affect the demand for female labour. Perhaps the most important single factor has been the transition in our occupational structure, through economic and technological change, toward the white collar sector[41] where women have had a traditional place,[42] and are better equipped to compete with men.[43]

The relatively greater increase in participation of older women, producing the two-peaked profiles of Graph 1, is in part the result of the increased scarcity of single females not already employed, and is thus the result of a necessary shift in demand from single to married women.[44] Because of changed childbearing patterns and other factors mentioned above, women in their mid-thirties or older comprise the greatest reservoir of untapped labour, excluding the school-age population. Given a demand for female labour, and excluding marked participation increases of women in the prime childbearing years, the response could only come from the older women.

Conditions of work for women have improved considerably since World War II, as they have for men. The decline in the average work week and in the number of hours worked during a day, passage of minimum wage laws in some Provinces and by the Federal Government, and the increased availability of part-time employment, have all contributed to the attraction of the labour force for married women.[45] Some firms, such as the Essex Wire Corporation at St. Thomas, Ontario, had shifts especially designed to accommodate married women.[46]

If there has been an increase in the availability of child care services, which are provided both by governments and by individuals, such service extension has possibly contributed toward some increase in the employment of married women with pre-school children.

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[37] As examples, see: Dept. of Labour, *Married Women Working for Pay*, Ottawa: Queen's Printer, 1958, and Nye and Hoffman, *op. cit.*, pp. 23-26.

[38] See: Mincer, J., *op. cit.* The relevance of Mincer's argument for Canada is discussed in Ostry, S., "The Female Worker", *op. cit.*

[39] Bell, D., *Work and its Discontents*, Boston: Beacon Press, 1956, p. 31.

[40] See: Nye and Hoffman, *op. cit.*, pp. 31-38.

[41] On occupational composition change in Canada, see: Meltz, N., *Changes in the Occupational Composition of the Canadian Labour Force, 1931-1961*, Economics and Research, Dept. of Labour, Ottawa: Queen's Printer, 1965, and also Meltz, N., and Ostry, S., *Changing Patterns in Women's Employment*, Women's Bureau, Dept. of Labour, Ottawa: Queen's Printer, 1966, and Allen, P., "Tendances des Professions au Canada de 1891-1961", *Actualité Economique*, Montréal, Vol. 41, No. 1, Apr.-June, 1965, pp. 49-99.

[42] Meltz, *op. cit.*

[43] Indeed, perhaps better equipped educationally than males for the contemporary situation. See: Hall, O., and McFarlane, B., *Transition From School To Work*, Special Labour Studies, Report No. 10, Dept. of Labour, Ottawa: Queen's Printer, 1952.

[44] The importance of the shift in the demographic composition of the female population between 1951 and 1961 for the increased participation rate of older women is explored at length in another study. See: Allingham, J., *op. cit.*

[45] The increase in the part-time female labour force has been greater than for the total female labour force, suggesting the facilitating nature or part-time work. See: Dept. of Labour, *Women at Work in Canada*, *op. cit.*, pp. 23-4. The relative fluidity of female movement in and out of the labour force contributes to an underestimation of yearly employment, if only data from one point of time—such as the census data—are used. See: Ostry, S., "The Female Worker", *op. cit.*, and Whittingham, F.J., and Wilkinson, B.W., *op. cit.*

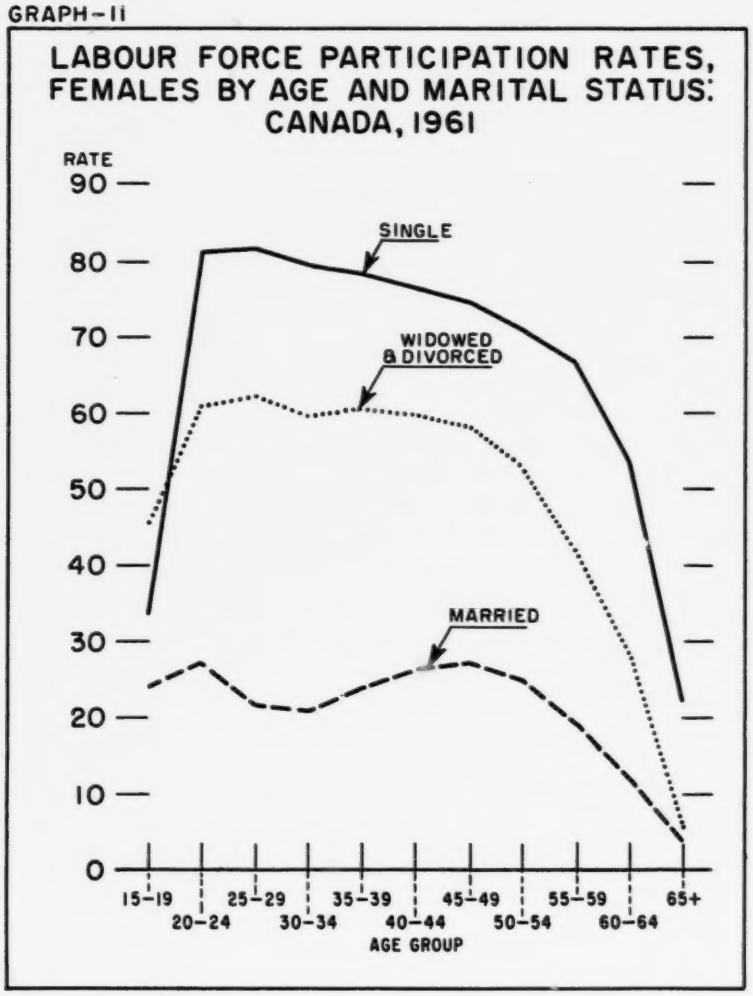
[46] See: "New Answer To Labour Shortage", *Toronto Globe and Mail*, Feb. 23, 1967.

AGE, EDUCATION, AND MARITAL STATUS AS PARTIAL DETERMINANTS OF FEMALE PARTICIPATION

Participation Profiles by Age, Education, and Marital Status

Graph II, below, shows the participation profiles of hypothetical cohorts of females, by marital status. A comparison of these three profiles with that of all considered together as in Graph I, p. 12, shows that the two-peaked profile of Graph I derives its shape mainly from the profile for married females. The two-peaked profile in Graph I would tend to reflect the pattern for married females, since married females become the majority of females by age group 20-24, thus even a relatively low participation rate relative to that of single women at older ages means a considerable contribution in the number of married women to the older female labour force. Table I illustrates this point.

GRAPH-II



The participation profiles shown in Graph II have been noted by other Canadian researchers[47] and similar patterns were found in the United States.[48]

TABLE I. Marital Status Distribution of Females in Canada, 1961, by Age Group

Age group	Marital status			
	Single	Married	Widowed and divorced	Number
	percentage distribution			
15-19 years	91.3	8.7	0.0	703,524
20-24 "	40.5	59.2	0.3	596,507
25-29 "	15.4	83.7	0.8	595,400
30-34 "	10.5	88.1	1.4	627,403
35-39 "	9.2	88.5	2.3	639,852
40-44 "	8.9	87.0	4.1	558,965
45-49 "	9.5	83.7	6.8	499,800
50-54 "	10.4	79.2	10.4	420,279
55-59 "	10.5	73.0	16.6	343,690
60-64 "	10.2	64.8	25.0	291,066

Source: calculated from data in the *1961 Census of Canada*, Vol. 1, Bulletin 1.3–1, Table 78.

Education has frequently been shown to be directly related to participation rates, regardless of marital status, or presence or ages of children.[49] Graphs III-VII, provide an impressionistic indication, in terms of participation profiles, of the relative importance of age, education and marital status for participation in Canada, 1961.

A comparison of Graphs III-VII with Graph I suggests that Graph I takes its overall shape not only from married females, but from the profiles of the dominant educational groups – in particular, women with 1-3 years of secondary school (Graph V).

Several preliminary observations should be made from Graphs III-VII. Firstly, the general profile differences by age and marital status for all females – Graph II – hold for almost all the separate educational groups. However, differences in the profiles in Graphs III-VII are readily apparent, revealing education as a variable of some significance.

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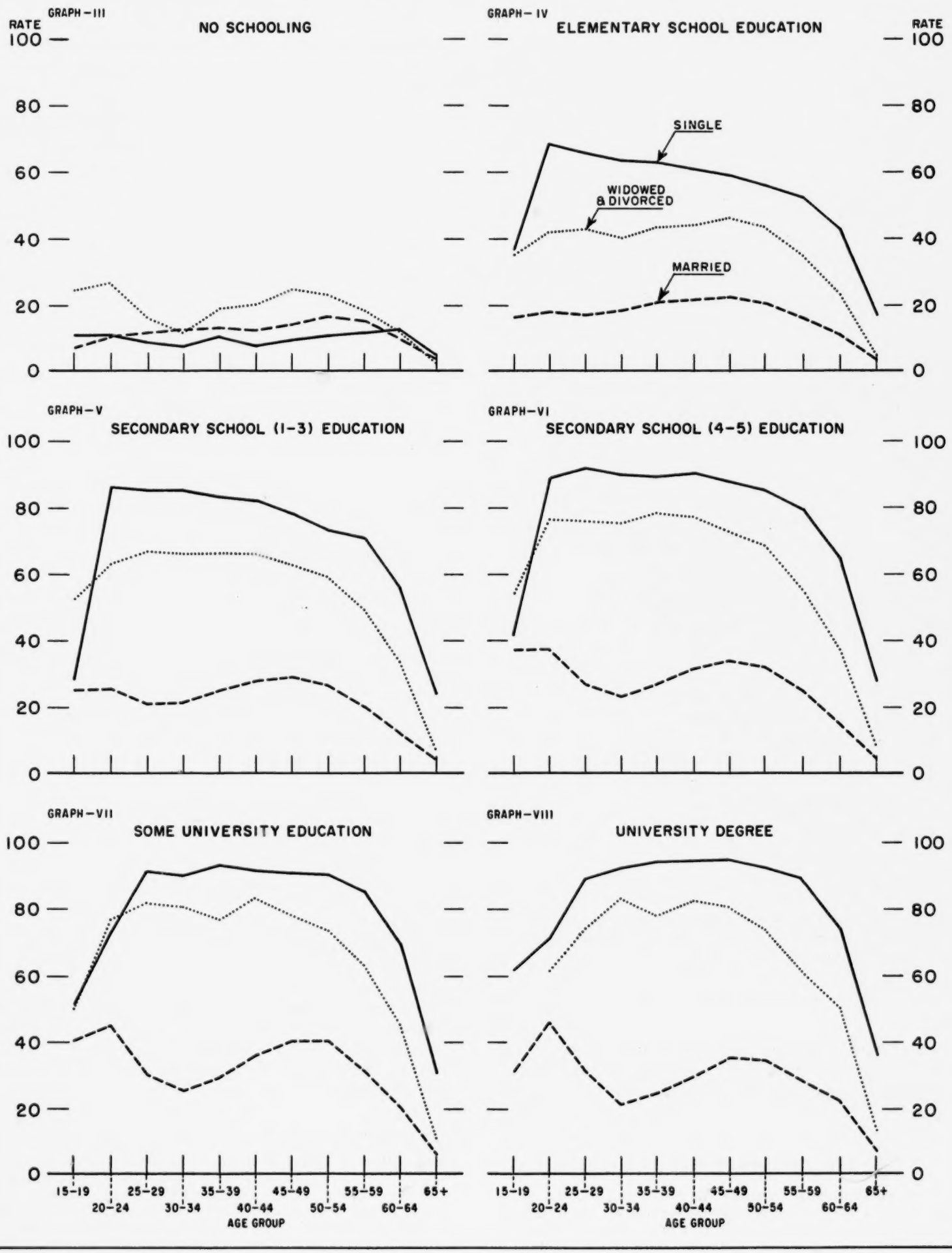
[47] See: Ostry, S., and Podoluk, J., *op. cit.*, Chart E-3, p. 28.

[48] Oppenheimer, Valerie K., *op. cit.*, sums up a long tradition of research, the better known works being that of Long, C., *The Labour Force Under Changing Income and Employment*, National Bureau for Economic Research, Princeton: Princeton University Press, 1958, and Bancroft, G., *The American Labor Force: Its Growth and Changing Composition*, Social Sciences Research Council, New York: Wiley, 1958, and Durand, J.D., *The Labor Force In The United States, 1890-1960*, Social Sciences Research Council, New York: 1948.

[49] Ostry, S., "The Female Worker", *op. cit.*

LABOUR FORCE PARTICIPATION RATES OF FEMALES BY AGE, EDUCATION, AND MARITAL STATUS: CANADA, 1961



The gap between the participation rates of single and married women in each of Graphs IV - VII is much more impressive than the differences among the profiles of married or of single females over the Graphs, providing a first impressionistic indication that marital status is of greater importance for participation than is education. Females with no formal schooling – Graph III – are markedly different in their participation profiles from the others. Not only are their participation rates very low at any age or any marital status – the maximum rate shown is about 27 per cent – but also, single women from ages 20 - 24 actually have the *lowest* participation rates instead of the highest, as with the other educational groups. Part of the explanation for the latter phenomenon may be that a higher proportion of single females with no schooling than of others will be comprised of various mental defectives for whom gainful employment would be improbable.[50] The extremely low participation rate for the 'no education' group as a whole may in part be related to the location of a large proportion of these women in remote parts of the country where employment opportunities are less than bountiful.[51]

TABLE II. Average (Mean) Number of Children per Ever-married Woman, by Age Group and Education, Canada, 1961

Woman's age in June, 1961	Education		
	Elementary or less	Secondary (some or complete)	University (some or degree)
15 - 19 years	0.84	0.69	0.22
20 - 24 "	1.58	1.27	0.72
25 - 29 "	2.53	2.06	1.51
30 - 34 "	3.21	2.57	2.23
35 - 39 "	3.68	2.78	2.54
40 - 44 "	3.96	2.79	2.53
45 - 49 "	3.84	2.59	2.24

Source: Calculated from data in the *1961 Census of Canada*, Bulletin 4.1 – 8, Table 43.

Because women with no schooling are so deviant in terms of participation behaviour, and because they comprise such a small proportion of all females in the labour force – less than one percent in 1961 – they will largely be ignored in this study.

The profiles in Graphs IV - VII for widowed or divorced females show a general participation rate closer to single than to married females, but a shape that is similar to that of married females, suggesting the impact of child care. Their higher rates, over married females, are likely related both to a lighter child burden and to the greater proportion who must be self-supporting. In addition, or possibly as a function of the latter reason, a higher proportion of widowed or divorced than of married women live in urban centers, where employment opportunities would be greater.[52]

The sharpness of the two-peaked profile for married females is in general directly related to education, as Graphs III - VII illustrate. There are several possible factors involved.

Firstly, the higher the education, the higher the initial participation rates[53] and hence the greater the possible decline at later ages. For example, even if the participation rate of married women with no education – Graph III – fell to zero at ages 30 - 34, then rose to the level actually shown at ages 34 - 49, the resultant two-peaked profile would not be as sharply delineated as that shown by women with university degrees in Graph VII.

Secondly, if the ages of childbearing are more uniform and more compressed for each ascending educational group of women, then the ages of maximum competitive power of the wife and mother roles with that of 'worker' would be more uniform and hence, a sharper profile would emerge. The higher propensity of married women with a good education to participate, and a considerable demand for their services is clearly reflected in higher rates prior to age 30 - 34. If the hypothesis of a more uniform, compressed, childbearing period is upheld by future research and if the initial high participation propensity is maintained, then the sharp 'rebound' in rates after the low at ages 30 - 34 would partly be accounted for.

Conversely, initially low participation rates of married females with a poor education – Graphs III and IV – indicate some interaction of low participation propensity and demand. Such women are likely characterized by early pregnancy and more pregnancies, spread out over a longer period.[54]

[50] Logically, most mental defectives would have no formal schooling. However, there are no data to indicate whether most women with no schooling (say, below age 40 to eliminate most who did not have an opportunity for schooling) are mental defectives.

[51] 73 per cent of the female population not attending school in 1961 lived in urban areas but only 57 per cent of females with no schooling lived in urban areas. Calculated from data in *1961 Census of Canada*, Vol. 1, Bulletin 1.2 – 10, Table 73. Canadian aboriginals may be strongly represented in the no-schooling category.

[52] In 1961, 72 per cent of married females lived in urban areas, in contrast with 91 per cent of divorced women and 78 per cent of widowed women. These data were calculated from the *1961 Census of Canada*, Vol. 1, Bulletin 1.2 – 4, Table 29. Data were not available for an age control.

[53] This is true for married females but school attendance by a 'large' proportion of single females of 'higher' education up to ages 20 - 24 lowers their participation rates at these ages.

[54] See: Henripin, J., *op. cit.*, Ch. V, VIII.

Table I Appendix A, p. 25, illustrates that earlier average age at marriage is strongly associated with lower education, and data from other countries show that early marriage is strongly associated with lower education, pre-marital pregnancy, and a larger completed family size. The absence of contraceptive use or inefficient use thereof appears to be the major reason for the interrelations. See: Freedman, R., *et al.*, *Family Planning, Sterility and Population Growth*, New York: McGraw-Hill, 1959, pp. 115 - 122.

The relative 'child-burden' of ever-married women by age and education is shown in Table III. At every age, fertility is inversely related to education. Part of the reason is that age at marriage is also inversely related to education and hence the period 'at risk' for childbearing is inversely related to education.[55]

A relatively heavy child burden, with childbearing extended beyond the average age, combined with a low demand for the services of poorly educated women, could account for the failure of participation rates of married females in Graphs III and IV to show much of a rise after ages 30-34. The greater range in participation rates of married women with higher education is shown quantitatively in Table III, below. In Table III, the absolute and percentage differences between the participation peaks and the low point at ages 30-34, shown in Graphs IV-VII, are given.

The direct relationship between education and the extent of participation decline during the initial phase of the family cycle is evident in Table III. While the participation rate of married females with elementary education declines only to a level 93 percent of its initial peak, for married females with a university degree, the decline is over 50 per cent.

TABLE III. 'Elasticity' of Married Female Participation by Education Between the Two-peaked-profile Ages Associated with the Family Cycle

	Education					
	Elementary	Secondary		Some university	Degree	All
		1-3	4-5			
A. Participation rate at first peak[1]	18.29	26.19	37.89	45.11	46.13	27.24
B. Participation rate at low point (ages 30-34)	17.03	21.34	23.68	25.73	21.69	21.02
C. Participation rate at second peak (ages 45-49)	22.45	29.19	34.24	40.47	35.03	27.34
A-B	1.26	4.85	14.21	19.38	24.44	6.22
$\frac{A-B}{A} \times 100$	6.9	18.5	37.5	43.0	53.0	22.8
C-B	5.42	7.85	10.56	14.74	13.34	6.32
$\frac{C-B}{C} \times 100$	31.8	36.8	44.6	57.3	61.5	30.1

[1] Ages 20-24 for women with 1-3 years secondary or less, ages 25-29 for the remaining categories.

Source: Participation rates are from unpublished tabulations from the *1961 Census of Canada* prepared for the Labour Division, DBS.

The 'rebound' of participation rates after the low at ages 30-34 also shows a general direct relationship to education. The major exception is the 'rebound' for women with less than 4-5 years of secondary school who show *higher* participation rates at ages 45-49 than at the initial peak.[56]

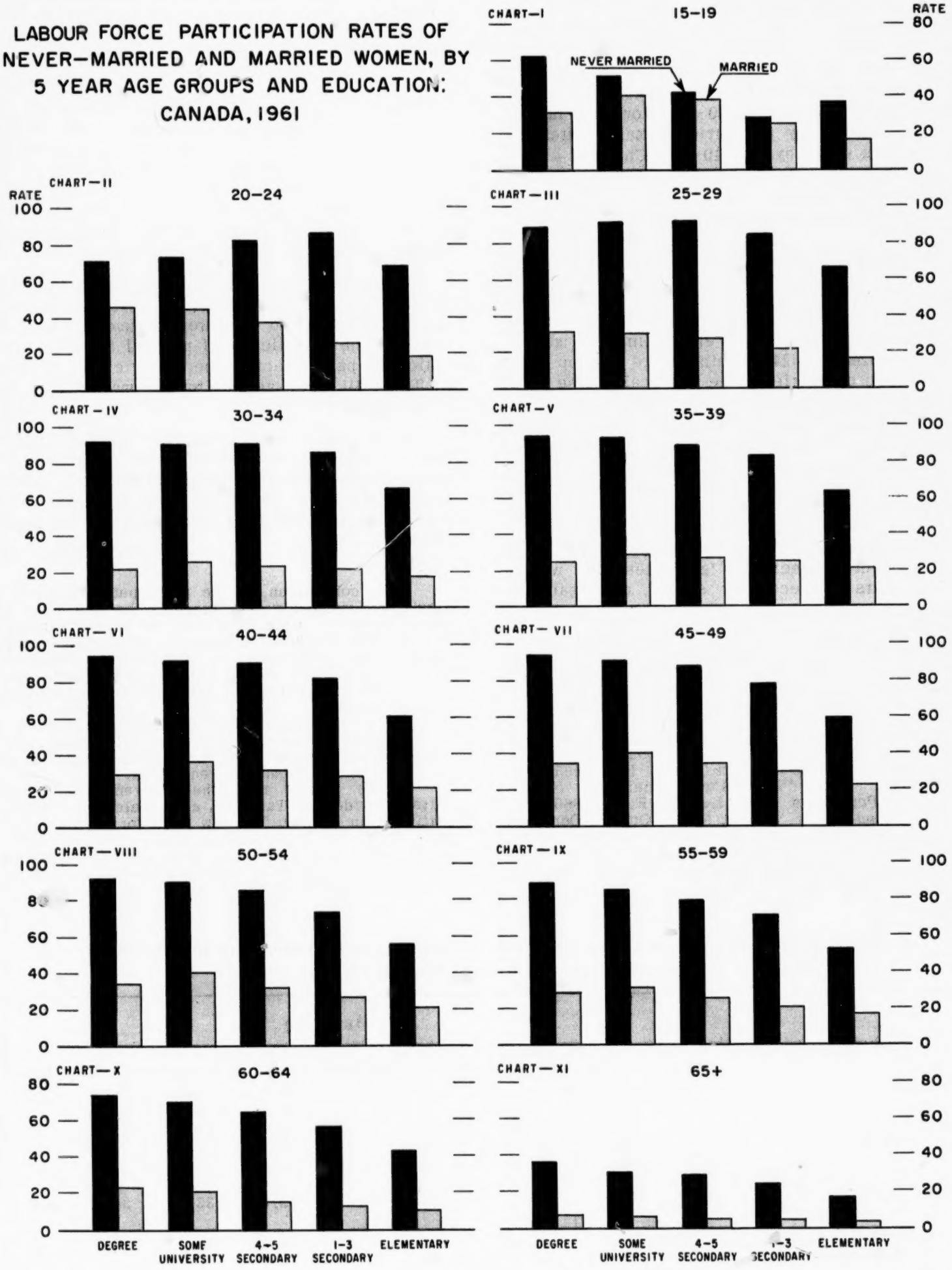
An additional perspective on the relative importance of age, education, and marital status for participation, is provided in Charts I-XI below. Each chart shows, for a specific age group, the participation rates by education, of married and of single women. As education is plotted in sequence along the horizontal axis, the consistency of any relationship of education with participation is evident at a glance. For example, in Chart II, the height of the bars for married females declines consistently from left to right, showing a direct relationship between education and participation. Also note that the shortest bar for single females in Chart II is taller than the tallest bar for married females, suggesting that marital status is a more powerful determinant of participation for this group than is education. Such is the case for all age groups with the exception of women aged 15-19. Many of the single women aged 15-19 would still be in school, thus reducing their participation *vis-à-vis* married females.

Although a direct relationship between education and participation is generally evident in Charts II-XI, the relationship is clearer among older women – say, from Charts IV-XI. The relationship becomes more clearly direct ar earlier ages for married females, for whom school attendance would presumably be a less restrictive factor.

[55] However, with duration of marriage taken into account, education and fertility still show an inverse relationship. See: Henripin, J., *op. cit.*, *Appendice H, Tableau H 4.*

[56] Such a result may be an artifact of cross-sectional data. Appendix A deals with this problem.

LABOUR FORCE PARTICIPATION RATES OF NEVER–MARRIED AND MARRIED WOMEN, BY 5 YEAR AGE GROUPS AND EDUCATION: CANADA, 1961



The relative 'average height' of participation blocks for single and for married females in Charts I-XI provides an impression of the relative importance of marital status, at each age, for participation. For example, it is evident in Chart IV that married women participate considerably less than single females aged 30-34. However, largely due to the re-entry of married females after the childbearing years by age 40-44—Chart VI—there is considerably less distinction between the two marital status groups, particularly among women with at least some secondary schooling.

A much more consistent relationship between education and participation would be shown in Charts III-XI if the top three educational categories were combined. There appears to be little difference in the participation rates of either single or married females, after age 24, within any of the top three educational categories. One can call these three categories of women with the highest education the 'graduates' while the remainder, can be termed the 'drop-outs'.[57] The reasons for the general lack of strong participation differences among women having one of the top three educational characteristics are not readily apparent.

The impact of education in Charts III-XI is most evident between the 'graduates' and women of 1-3 years of secondary school, and again between the latter and women of elementary school education. The steepness of participation declines between these 'educational watersheds' is greater for single than married women, illustrating the partially 'equalizing' effect of marriage on women.[58]

Table IV below shows for each age group, the absolute and percentage difference in the participation rates of women with 4-5 years of secondary school (taken as modest representatives of the 'graduates') and women with only elementary school education. The relative consistency of participation differences by education, among variously aged single women in Table IV is apparent.[59]

For married females, Table IV shows education to be of minimal importance at ages 30-34, when the burdens of child care are at a maximum for many women. The 'elasticity' of married female participation, in part reflecting the family cycle, is shown in Table IV to be greater for the more highly educated women.[60]

In summary, thus far marital status, education, and age have all been shown to affect participation rates of women. On an impressionistic basis, marital status has been shown to have a greater effect than education, which in turn has a greater impact than age.

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[57] All women with 'degrees' are by definition graduates; a proportion of women with 'some university' will eventually complete their degrees and in any case, must be high school graduates. While the census question relates only to the highest grade attended—not necessarily completed—most women claiming 4-5 years of secondary school would be graduates. A strong, direct relationship between education and labour force participation of females was found in Canada, Feb. 1965. See: Whittingham, F.J., "Educational Attainment of the Canadian Population and Labour Force/1960-65", *Special Labour Force Studies*, No. 1, Ottawa: Dominion Bureau of Statistics, Oct. 1966. For U.S. data see: Bowen, W.G., *et. al.*, "Educational Attainment and Labour Force Participation", *American Economic Review*, Vol. 56 No. 2, May 1966, pp. 567-82.

[58] A comparison of the participation profiles of single and married women suggests that the "married" status restricts employment from the level "expected" on the basis of education alone. In addition, one finds a considerable difference in occupational deployment between single and married women with the same education. This latter point will be pursued in a later study in this series.

[59] The slightly higher decline by education for women aged 40-44 or over may reflect the greater deceleration of labour force demand with advancing age, for women of only elementary education.

[60] One should note the different family cycle patterns evident in Table IV, as revealed by changes in participation by age. The low point for married females with 4-5 years of secondary school is at ages 30-34 while for those of elementary school, the low point is at ages 25-29, suggesting earlier childbearing. This point is also revealed in Graph IV, p. 16.

TABLE IV. Comparison of Participation Differentials by Education for Women of Comparable Age and Marital Status, Canada 1961

Marital status and education	Age group							
	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64
Single (A) 4-5 secondary	92.09	90.05	89.28	90.54	88.06	85.28	79.67	64.54
(B) Elementary	66.31	63.79	63.40	61.01	59.56	56.45	52.59	43.17
(A)-(B)	25.78	26.26	25.88	29.53	28.50	28.83	27.08	21.37
$\frac{(A)-(B)}{(A)} \times 100$	28.0	29.2	29.0	32.6	32.4	33.8	34.0	33.1
Married (C) 4-5 secondary	27.37	23.68	27.27	31.82	34.24	32.33	25.53	15.10
(D) Elementary	17.03	18.24	20.80	21.70	22.45	20.94	16.61	10.90
(C)-(D)	10.34	5.44	6.47	10.12	11.79	11.39	8.92	4.20
$\frac{(C)-(D)}{(C)} \times 100$	37.8	23.0	23.7	31.8	34.4	35.2	34.9	27.8

The Systematic Relationship Between Marital Status, Education, and Age in the Participation of Women in the Canadian Work Force, 1961

Table V sets out the systematic importance of the three variables considered.

The structure of Table V is based on a desending rank order of participation rates among women having unique combinations of age, marital status, and education characterisitics. The systematic shift in these characterisitics as one goes down the ranked list of participation rates illustrates the relative importance of the variables considered. For example, in Table V, the top 16 rates pertain to single females. Single women, *regardless* of age or education[61] have higher rates than any group of married females, however 'advantaged' the latter may be in terms of age or education for participation.

[61] Within the age and educational limits considered. Integration of more educational categories does not change the general conclusions reached and merely complicates the presentation. The widowed and divorced have been excluded for the same reason.

TABLE V. Relative Importance of Marital Status, Education and Age in the Labour Force Participation of Women in 1961 – Schematic Presentation Based on Ranked Participation Rates

Ranked participation rates	Marital status	Education[1]	Age group
92.09	Single	High	25 - 29
90.54	"	"	40 - 44
90.05	"	"	30 - 34
89.28	"	"	35 - 39
88.06	"	"	45 - 49
85.28	"	"	50 - 54
79.67	"	"	55 - 59
66.31	"	Low	25 - 29
64.54	"	High	60 - 64
63.79	"	Low	30 - 34
63.40	"	"	35 - 39
61.01	"	"	40 - 44
59.56	"	"	45 - 49
56.45	"	"	50 - 54
52.59	"	"	55 - 59
43.17	"	"	60 - 64
34.24	Married	High	45 - 49
32.33	"	"	50 - 54
31.82	"	"	40 - 44
27.37	"	"	25 - 29
27.27	"	"	35 - 39
25.53	"	"	55 - 59
23.68	"	"	30 - 34
22.45	Married	Low	45 - 49
21.70	"	"	40 - 44
20.94	"	"	50 - 54
20.80	"	"	35 - 39
18.24	"	"	30 - 34
17.03	"	"	25 - 29
16.61	"	"	55 - 59
15.10	"	High	60 - 64
10.90	"	Low	60 - 64

[1] 'High' refers to 4 - 5 years secondary school; 'Low' refers to elementary education. See p. 20 for rationale behind using these categories.

Source: unpublished tabulations from the *1961 Census of Canada*, prepared for the Labour Division, DBS.

The relative importance of the three variables is indicated by the structure of Table V. Firstly, the top half of the rates relates to single females, the bottom half to married women, indicating the primary importance of marital status. Each half can be further divided in two; the top half of the rates for single and for married women pertains to females of 'high' education (referring to 4-5 years secondary school). In general then, the following almost systematic ranking emerges:

(a) Single women of 'high' education,

(b) Single women of 'low' education,

(c) Married women of 'high' education,

(d) Married women of 'low' education.

Since age is the residual factor, the relative importance of the three variables is clearly marital status, education, then age.[62]

Although age is of least importance, as hypothesized some pattern in its effect is evident in Table V. Age affects the participation rates of single and married women differently. Within each of the educational groups of single females, age is roughly related in an inverse manner to participation. The older the women, the less likely they are to participate even with education controlled.

The pattern for married females is more complex. Within each of the educational groups of married women, the top three rates relate to those aged 40-44, 45-49 and 50-54, ages at which labour force re-entry occurs, after the prime child-bearing-and-care years have past. Next come rates for women at earlier phases of the family cycle. The lowest rates pertain to women in the oldest age group considered – 60-64. For married women this latter age has a greater impact on participation than does education.

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[62] The reader is reminded that these are 'universe' data; they were derived from special tabulations of the entire 1961 census population, *not* a sample thereof. All observed differences are therefore 'real' differences, within limits of enumeration and coding error. An alternative analytical method to that used in this study is that of regression analysis using dummy variables. This latter technique is employed in the more complex analysis of additional factors affecting female participation, the results of which will be presented in Part II of this study.

APPENDIX

COHORT ANALYSIS IN THE STUDY OF TRENDS AND PATTERNS OF FEMALE PARTICIPATION IN THE LABOUR FORCE

The pattern of participation by age is often presented by plotting along a horizontal axis representing age, the age-specific participation rates as revealed at one point in time, such as in a census. For example, the census of June 1961 provides data from which one can calculate the participation rates of women aged 15-19, 20-24, 25-29, and so on. Graph I, p. 12 presents such data.

The participation profile as shown in Graph I is often taken, explicitly or implicitly, to represent the participation of a 'real' (birth) cohort of women over time – i.e. the changes in participation over their lives, of women who were born at the same time.[63]

Table A 2 exhibits data to illustrate the difference between a cross-sectional approach and a longitudinal approach to the study of participation profiles.

The data in columns under each year in section one of Table A2 are cross-sectional. They relate to the participation rates of women by age group in a single year. The data under '1961' in greater age detail, have been used to construct the profile shown in Graph I, p. 12. Explicit or implicit in the interpretation of such profiles is the assumption that the changes in participation rates by age shown by cross-sectional data, may be used to approximate the participation of a birth cohort over time. For example, under the '1961' column in Table A2, one notes the participation rates of women aged 25-34 and 35-44 as 29.2 and 31.2 respectively. However, when women aged 25-34 in 1961 themselves become aged 35-44 (in 1971) their participation rate could be quite different from that of women aged 35-44 in 1961. Because younger women have a higher average education and may have smaller, better planned families, one expects, all else being equal, that they will have higher participation rates at older ages than shown by older women at the present time.

Where data permit, one can reconstruct the participation patterns of 'real' cohorts of women.[64] For example, one can follow the changes in participation by age of women who were 15-24 years of age in 1921 in Table A2 by following the data along the descending diagonal. Women aged 15-24 in 1921 were aged 25-34 in 1931, 35-44 in 1941 and so on.[65]

In order to present approximate data on the participation profiles of four birth cohorts of women over a major portion of their working lifetime, data in Table A2 under the columns 1911, 1971 and 1981 were derived by projection.[66] Following conventional methods of fertility analysis, age-specific participation rates for each of the four birth cohorts – aged 15-24 in years 1911, 1921, 1931 and 1941 respectively – can be summed along their respective diagonals to provide an index of participation over the working lifetime. This index – also calculated for hypothetical cohorts by summing the data in each column in Table A2 and multiplying the value by .10 – is called the Total Participation Rate.[67] This rate would indicate the average number of years spent in the labour force by a cohort of women over the age span indicated, if several assumptions are made.[68] However, the use of this measure does not depend on its actual referent but on the *relative* magnitude of the Total Participation Rate between cohorts.

Table A2 shows that the Total Participation Rate has risen for the more recent cohorts – whether hypothetical or real. The proportion of the Total

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[63] Birth cohorts may be defined more or less rigorously depending on the problem. For the purposes of this paper, a birth cohort refers to women who were born in approximately the same year. For example, most women aged 20-24 in June 1961 would have been born within the years 1937 and 1941 and thus would be called the birth cohort of 1937-41. The intricacies of cohort analysis are demonstrated in Whelpton, P.K., *Cohort Fertility*, Princeton: Princeton University Press, 1956.

[64] The age groups used in Table A 2 are too broad for any purpose but general illustration of certain principles of analysis. However, lack of age detail in earlier censuses precluded a more detailed Table. On participation data from earlier censuses, see: Ostry, S., "The Female Worker", *op. cit.*

[65] No cohort remains intact over time because of mortality. In Canada, the birth cohorts are 'bled' through emigration and 'transfused' through immigration. If the change of persons in a cohort is 'selective' by participation propensity, 'trends' over time would be in part a reflection of such compositional shifts.

[66] The projected data for 1971 and 1981 were derived by graphing a straight-line continuation of the rate changes over the 1951-1961 decade. The figure for 1911 was derived in a similar fashion from the change noted between 1921 and 1931. If *percentage* change over the respective decades had been used to project the data, a far less conservative estimate of 1971 participation would be derived.

[67] Consider the data in Table A 2 under the 1921 column. 34.1 per cent of women aged 15-24 were in the labour force at census time, 1921. This rate is the equivalent of .341 per women. Since 10 years of 'exposure' are included in the age interval 15-24, the average woman will spend .341 x 10 or 3.41 years in the labour force between the ages 15 and 24. By summing this cumulative labour force experience one concludes that according to age-specific participation rates of 1921, the average woman of the hypothetical cohort would spend 8.98 years working. The corresponding working lifetime using 1961 age-specific participation rates is about 16 years. The technique is most often encountered in the form of the life table. For example: see: Garfinkle, S.H., "Tables of Working Life for Women, 1950", *U.S. Bureau of Labor Statistics*, Bulletin 1204, Washington: Government Printing Office, 1962. The logic employed in applying demographic techniques of the life table to more general problems is clearly presented in Stockwell, E.G., and Nam, C.B., "Illustrative Tables of School Life", *Journal of the American Statistical Association*, Vol. 58, No. 304, Dec. 1963, pp. 1113-1124. On the latter article, see the *corrigenda, ibid.*, Dec. 1964, p. 1299.

[68] One assumption is that the participation rates observed at one point in time are the same as the average rates over the years.

Participation Rate for each cohort that was achieved by age 34 has *declined* for recent cohorts, illustrating, in the absence of great declines in rates below age 34, that the overall rise is primarily due to participation increases after the mid-thirties.

Part of the decline in participation observed between 1951 and 1961 among women aged 15-24 is due to the increased holding power of the schools.

Even if the decline in the proportion of the Total Participation Rate achieved before age 35 were arrested, and if it remained at the 34.2 per cent observed in the latest cohort of completed participation (women aged 15-34 in 1941),[69] The Total Participation Rate for the most recent cohorts—women aged 15-24 in 1951 and 1961 respectively—would continue the trend toward more participation, as is shown by the data in Section two of Table A2. The reason is that participation rates over the ages 15-34, in part projected, are considerably higher overall than for previous cohorts.[70]

Trends in participation of the same age groups may be followed by looking across rows in Section one of Table A2. The increased participation rates of 'older' women—35+—are particularly evident.

Patterns of female participation by age, whether shown by cross-sectional or longitudinal data, are most often explained in terms of life cycle events, as suggested above, p. 11. Since the most important of such events for participation are marriage and subsequent childbirth, participation patterns by age are often presented separately by marital status, as in Graph II, p. 15.

Ideally, one should show separate participation profiles for women not only by marital status, but for cohorts which have been of that status for a similar length of time. For example, in Graph II, p. 15 one notes for married women a participation rise between ages 15-19 and 20-24. An explanation for this rise has not been offered in the literature, with most scholars concentrating on the dual-peaked feature of the profile. Indeed, one can only explain the initial rise by acknowledging a great weakness in the method of cohort anlaysis employed. Most scholars would recognize that if cross-sectional data are used, the participation rate of women 20-24 years of age cannot necessarily be equated with the rate which will be shown by women currently aged 15-19, five years later. Economic circumstances, for example, could change greatly in five years. However, such is the inherent risk of the cross-sectional approach. However, even with longitudinal data one is faced with the fact that married women aged 20-24 are not simply the survivors of married women aged 15-19 five years earlier. Ignoring migration problems, one is still left with the problem of selective marital status shifts by age. Early marriage is selective in terms of pre-marital pregnancy and by education, both of which are likely to affect participation rates. Through the impact of life cycle factors such as childbearing and care, one would expect that the participation rate of married women at 15-19 would *decline* by ages 20-24. Graph II shows that the rate *increased*. However, If married women aged 20-24 were separated by age at marriage, one would likely find a decline for those who married at ages 15-19. A plausible reason for the increase is that the composition of the hypothetical cohort of married females changes considerably by education and proportion of pre-maritally pregnant, with age. The additions to this cohort through later marriage of more highly educated women over time i.e. by age, appear to more than counteract the likely declining participation of that element of the cohort married at ages 15-19.[71] The average 'child burden' of married women aged 20-24 who married at ages 15-19 was 1.73 in 1961 in contrast with 0.77 for those who married at ages 20-24.[72]

Thus, when dealing with participation profiles specific by marital status, whether of real or hypothetical cohorts, one has the problem of compositional change in that cohort. The difficulty is most severe with married females, as those who comprise the cohort in its earliest stages—in the teen years—are likely to be selected from the ranks of single women by factors probably detrimental to participation—e.g. pre-marital pregnancy, and low education. Conversely, the cohort of single women 'benefits' by losing these women to the married cohort. Women of higher education, with a lower pre-marital pregnancy rate and with better prospects of completely controlled fertility, join the married cohort at later stages, drastically altering its composition.

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[69] This cohort is 'completed' only through use of the projected data for 1971 and 1981.

[70] This conclusion is reached simply by assuming that the accumulated participation rates of the two most recent birth cohorts—women aged 15-24 in 1951 and 1961 respectively—represent only 34.2 per cent of their ultimate Total Participation Rate. This latter index can therefore be estimated.

[71] Sixty-five per cent of married women aged 20-24 had married at ages 15-19. See: *1961 Census of Canada*, Bulletin 4.1—8, Table H-2.

[72] *Ibid.*

TABLE A 1. Average Age at Marriage of Ever-married Women, by Age and Schooling Categories, Canada, 1961

Age of wife	Schooling			
	Pre-high school	High school	Some university	University degree
	years of age			
25-29 years	20.15	20.65	22.10	22.97
35-39 "	21.79	22.56	23.96	25.26
45-49 "	23.17	24.61	26.27	27.23

Source: Unpublished tabulation from the population Sample, *1961 Census of Canada.*

TABLE A 2. Participation Rates of Real and Hypothetical Cohorts of Canadian Women

Section One

	1911[1]	1921	1931	1941	1951	1961	1971[1]	1981[1]
15-24 years	33.0	34.1	35.3	35.6	41.0	39.5	37.0	
25-34 "		19.5	24.4	27.9	25.5	29.2	33.0	
35-44 "		12.2	14.3	18.1	22.4	31.2	40.0	
45-54		12.0	13.0	14.5	21.1	32.9	44.5	
55-64		12.0	12.3	11.1	13.5	23.1	32.5	42.0
Total of column data		89.8	99.3	107.2	123.5	155.9	189.0	
Total participation rate		8.98	9.93	10.72	12.35	15.59	18.90	
Percent of total participation rate achieved by age 34		59.7	60.1	59.2	53.8	44.1	38.1	

Section Two: 'Real' Cohort data

Birth cohort	Total of diagonal values	total participation rate	Per cent of Total participation rate achieved by age 34	Birth cohort	Hypothetical total participation rate of recent cohorts if only 34.2 per cent achieved by age 30-34
Aged 15-24 in 1911	94.8	9.48	55.4	Aged 15-24 in 1951	20.5
Aged 15-24 in 1921	120.8	12.08	48.3	Aged 15-24 in 1961	21.2
Aged 15-24 in 1931	151.0	15.10	41.9		
Aged 15-24 in 1941	178.8	17.88	34.2		

[1] Projected values: see footnote 66 p. 23.

Source: Data from 1921 to 1961 we obtained from unpublished tabulation.

TABLE A 3. Labour Force Participation Rates of Single and Married Women in Canada, 1961, by Age and Education

Age and marital status	Education category				
	Elementary	1-3 secondary	4-5 secondary	Some university	Degree
15-19 years:					
Single	37.0	28.7	41.9	51.7	62.1
Married	16.6	25.3	37.7	40.5	31.3
20-24 years:					
Single	68.7	86.2	89.2	73.7	71.2
Married	18.3	26.2	37.9	45.1	46.1
25-29 years:					
Single	66.3	85.3	92.1	91.4	89.3
Married	17.0	21.3	27.4	30.2	31.3
30-34 years:					
Single	63.8	85.4	90.1	90.0	92.6
Married	18.2	21.9	23.7	25.7	21.7
35-39 years:					
Single	63.4	83.5	89.3	93.2	94.3
Married	20.8	25.4	27.3	29.3	24.7
40-44 years:					
Single	61.0	82.2	90.5	91.8	94.3
Married	21.7	28.1	31.8	36.4	30.0
45-49 years:					
Single	59.6	78.7	88.1	91.3	94.6
Married	22.5	29.2	34.2	40.5	35.0
50-54 years:					
Single	56.5	73.5	85.3	90.2	92.6
Married	20.9	26.8	32.3	40.2	34.8
55-59 years:					
Single	52.6	71.4	79.7	85.5	89.2
Married	16.6	20.3	25.5	31.7	28.6
60-64 years:					
Single	43.2	56.4	64.5	69.9	74.2
Married	10.9	12.7	15.1	20.4	22.7
65 years and over:					
Single	17.2	24.1	28.5	30.3	36.4
Married	3.3	4.3	4.9	6.2	7.1

Source: Unpublished tabulations from the *1961 Census of Canada.*